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By- Palmer, Francis H.

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A 7-year study is being conducted to determine if an 8-month intellective training program at ages two and three will improve a child's performance and if the effects will last through the first grade. The subjects consist of 240 Negro males from all social levels in Manhattan. Half of them are 2 years old and half are 3 years old. Subjects were assigned to an individual instructor in either a training group (where they were taught concepts) or a discovery group (where they had free play) for 2 hours a week. In addition, a control group of 70 children are being seen for assessment purposes only. All children were pretested and are measured annually. After 2 years of the program, the results indicated that up to age three social class is not a function of performance; from ages three to eight differences are present but insignificant; the experimental children perform better than the control children, the effects of the program received at age two last at least 1 year, and both experimental groups produce equally well. The results imply that early training may be beneficial, provided it is systematic, is uninterrupted, and occurs at least 2 hours a week with a one-to-one teacher-pupil ratio. (JS)

SUMMARY OF NIH GRANT #HD-02253
EARLY INTELLECTIVE TRAINING AND SCHOOL PERFORMANCE

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Francis H. Palmer
Principal Investigator
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The Institute for Child Development and Experimental Education is engaged in a seven year study at the Harlem Research Center to determine whether an eight month intellectual training program at ages two and/or three will improve a child's performance and if so whether these effects will last through the first grade of formal schooling. The need for intellectual training at these early ages is based on the following assumptions: (1) certain concepts are prerequisite for subsequent learning and (2) early acquisition of those concepts will provide the child with an intellectual headstart so that he can more profitably interact with his environment. Thus, the earlier the intervention, the greater the impact on the child's development.

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The subjects in the study are 310 Negro males born in Manhattan between August and December of 1964. The socioeconomic status of the children ranges from those with no father and mother on relief to those with parents who have college degrees and professional positions.

A total of 240 children participated in the training program -- half at age two (Alpha group) and half at age three (Gamma group). Of the 120 starting the program at age two, 25 were held over and also received training at age three (Alpha-Gamma group). Seventy children (Beta group) were used as controls and will be seen for assessment purposes only.

The Alpha and Gamma children were seen every week for two one hour sessions over an eight month period. The children were assigned to two treatment groups -- Training and Discovery. The children in each group were matched so as to control for social class, number of hours required to complete initial

PS 001485

assessment, and assessment scores. In both groups the child and his instructor interacted on a one-to-one basis. However, the children in the Training group were systematically taught concepts selected to increase their ability to make discriminations along dimensions of size, texture, position, form, quantity, etc. In general four steps for teaching each concept were specified:

1. The instructor demonstrated and labeled an instance of the concept.
2. The child performed an action related to the concept while the instructor labeled it for him.
3. The child indicated his understanding by responding appropriately to the instructor's request to demonstrate an instance of the concept.
4. The child used the concept label appropriately.

The purpose of the Discovery group was to allow us to distinguish between effects due to interacting with adults on a one-to-one basis and playing with materials not normally available, and effects due to the teaching of specific concepts. Thus no attempt was made to teach concepts to the children in the Discovery group. The same materials and toys used with the Training group were used with these children, but they were employed in a free play setting. The instructor was told to speak only if the child asked a question and to play with him in a manner similar to a normal nursery school.

The Experimental groups were assessed on a battery of measures before and after training. They are being tested annually thereafter until they finish first grade, as is the Control group.* Pre-training assessment for the two year olds consisted of a concept measure and two language measures. The

* Samples of white and Puerto Rican children at ages 2-0, 2-8, 3-0, and 3-8 will be assessed to make comparisons among ethnic groups.

older children were assessed on a battery of up to 17 measures. (See Table I.)

As of August 1, 1968, the following conclusions may be made from the data available from assessment at ages 2-0, 2-8, 3-0, and 3-8:

1. Contrary to the results of other studies, no differences in performance exist as a function of social class among children ages 2-0, 2-8, and 3-0. Furthermore, while differences are beginning to emerge by age 3-8, they are still, for the most part, insignificant. Hence, if the rationale of preschool programs is to intervene before the effects of social class are discernible on intellectual performance, ages three to three years and eight months is not too late.

2. After eight months of participating in the program in either of the experimental groups, both the Alpha and Gamma groups outperformed the middle class subjects in the Beta group. Thus there is no question that participation in this type of program substantially benefits children with respect to their intellectual performance whether the program occurs at age two or age three.

3. That the effects of this program are durable for at least one year has been substantiated by the performance of the Alpha group. Trained from 2-0 to 2-8, tested at 2-8, and retested at 3-8, these children continue to be superior to the control children. Thus it appears that the effects of training at age two do not wash out by 3-8. The results of the study suggest that intervention earlier than the traditional age of four years may have more durable effects for the child.

4. Within the Alpha and Gamma samples, both Training and Discovery groups benefit about equally, with both consistently superior to their controls.

This suggests that any well conceived and structured training may have equally beneficial effects, providing: (a) that the training is introduced early enough in the child's life, and (b) that the systematic, uninterrupted, one-to-one relationship between instructor and child occurs for at least two hours per week over an extended period.

TABLE I

Battery of Performance Measures¹

<u>Performance Measures</u>	Alpha 2-0	Alpha 2-8	Beta 2-8	Gamma 3-0	Alpha 3-8	Beta 3-8	Gamma 3-8
Language Assessment	X						
Verbalizations--Time Sample	X						
Concept Familiarity Index	X	X	X	X	X	X	X
Stanford Binet		X	X	X	X	X	X
PPVT		X	X	X	X	X	X
Persistence at a Boring Task		X	X	X	X	X	X
Embedded Figures		X	X	X	X	X	X
Sequence		X	X	X	X	X	X
Simple Perceptual Discrimination		X	X	X	X	X	X
Motor Battery		X	X	X	X	X	X
Labelling		X	X	X	X	X	X
Discrimination Problems ²		X	X	X	X	X	X
Body Parts		X	X	X			
Body Positions		X	X	X			
Delayed Reaction		X	X	X			
General Information		X	X				
Grouping					X	X	X
Sorting					X	X	X
Conservation: Number					X	X	X
Conservation: Length					X	X	X
Seriation ³					X	X	X

¹ Content and way test are administered varies with age.

² Included a number of tests: location, position, simple form, varied form, position to form shift, form to color shift.

³ Given to about 1/3 of Alphas and Gammas and all of Betas.

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